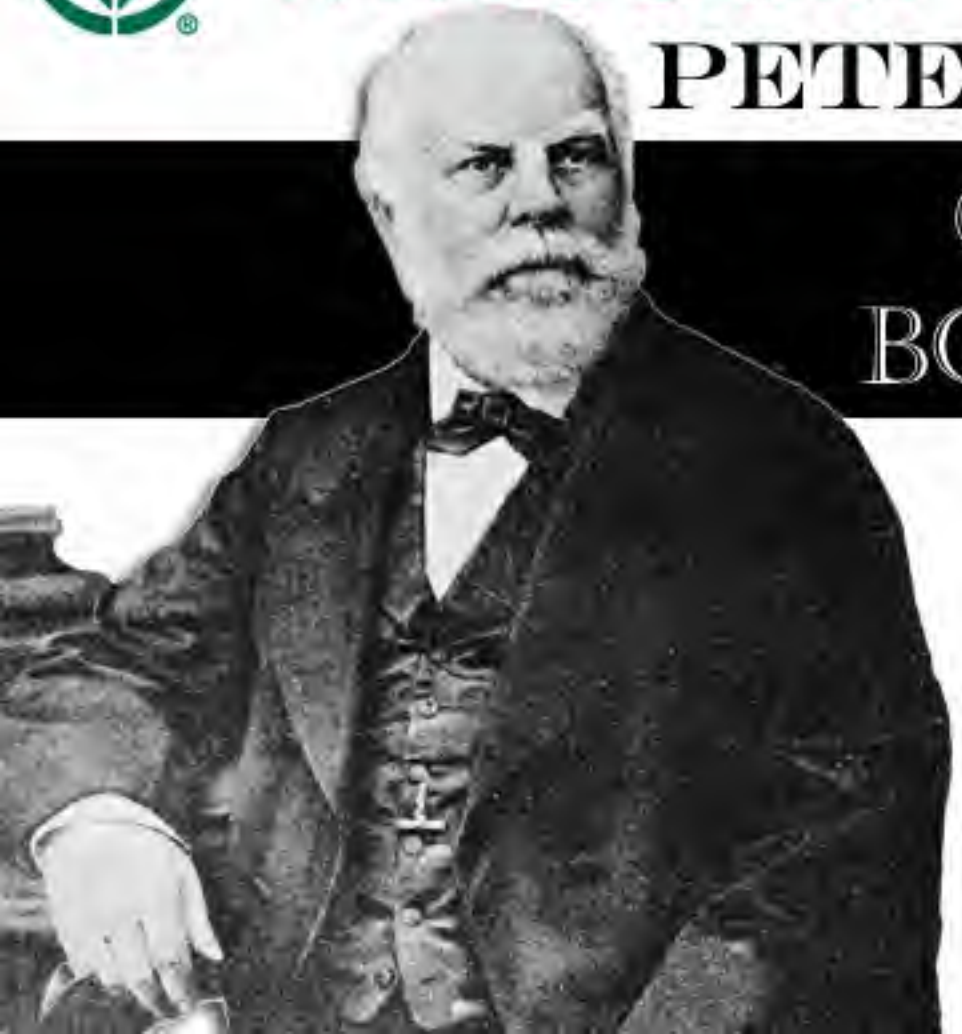
Missouri Botanical Garden
Peter H. Raven Library

George Engelmann Botanical Notebooks



Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Sagittaria natans, Charles River, Concord

Wholly submersed. Scape and phyllodia 2 to 4 ft. long, very slender. Scape terete or slightly flattened. Only one or two flowers of the lowest whorl female. Pedicels of the female flowers stouter than those of the male in the same whorl but of same length (2 to 4 in.) much longer than those of upper whorls and finally reflexed. Whorls 2 to 6. Racemes sometimes more than 18 in. long. Lowest whorl sometimes 3 in from next. Bracts linear-lanceolate acute, soon perishing. Flowers 5/8 in broad. Calyx 1/4 in broad. Stamens usually 7 rarely 8. Filaments bottle-shaped, glabrous. Fruit not formed.

Leaves grasslike, flattened phyllodia 2 to 4 ft long 1 line wide indistinctly one nerved Rarely the leaf has a terete submersed striate petiole with a lanceolate blade three-nerved, and

1/4 wide by 1 1/2 in. long.
Appressed and lehalles rising entirely above the influence of the tide. Begins to flower about the middle of June and continues to flower till end of July. Has two buds come to the surface about the middle of the forenoon opening and floating on the water till towards night when they are drawn under and the next day one or two more come up and disappear, and so on.


7 stam


8 stam


pistil


stam

C E Faxon
Nov 1881

E H Hitchings writes March 11 1882 that he was the first to discover in July 22 1870 in Neponset River, that Asa Faxon found it after that (in some year) in Neponset and Charles River, & Mr Robinson in Ipswich River

varieties of trees of great value in the economic arts, and indispensable to the most charming and effective compositions of the landscape planter. As we announced in our March issue, Professor Sargent has been appointed by the Government of the United States to draw up a Report on the Forest Wealth of the States. This report is now in course of preparation, and we are pleased to learn that it is intended to accompany it with a complete Catalogue of the Forest Trees of North America, which will render the report much more valuable to the Americans, and especially so to the inhabitants of other countries, who from scientific or commercial points of view are interested in the forests and forest trees of North America.

The preliminary catalogue now before us has been issued with a view to obtain from every available source as complete and accurate details as possible concerning the indigenous trees of North America, with special reference to their geographical distribution and their economic properties and uses. Information is particularly wanted on the following points:—

1. The extreme geographical range of any species.

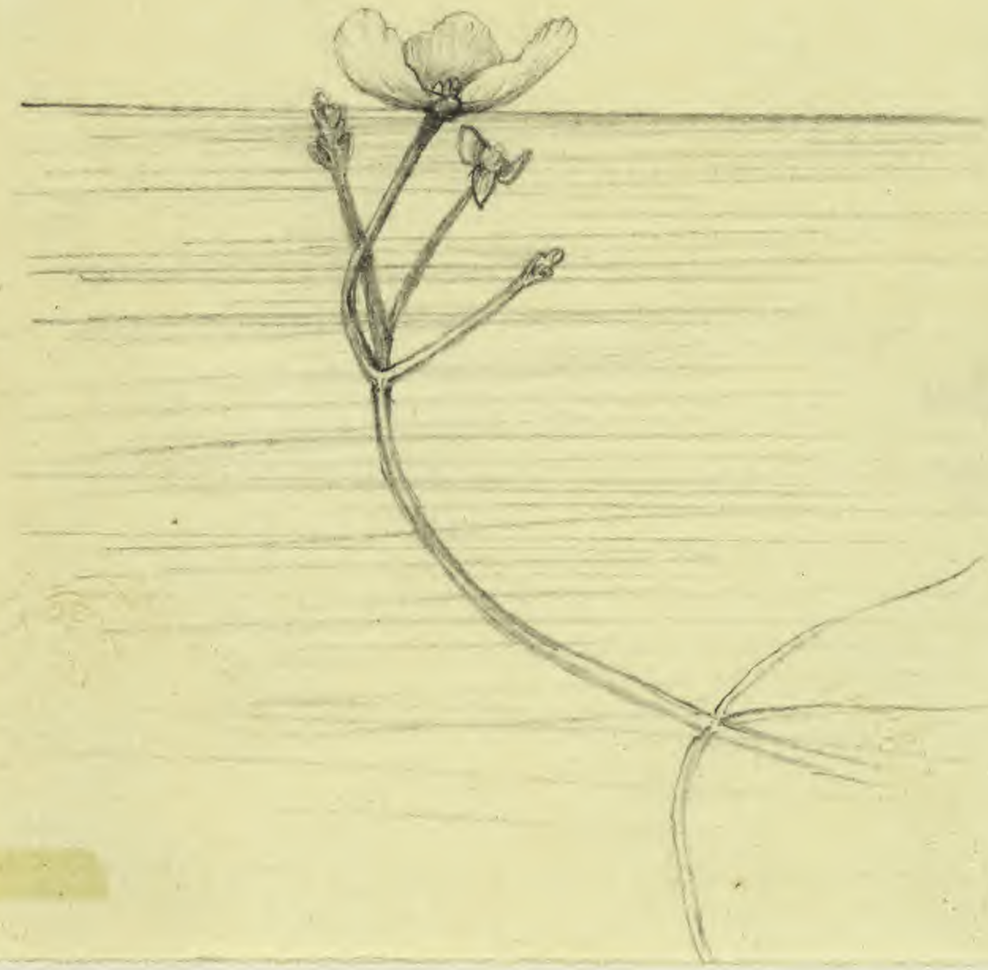
2. The region and elevation where any species is principally multiplied and reaches its greatest perfection.

receive and duly acknowledge whatever information or corrections may be sent to him, of a nature which will serve to make the final publication exact and complete.

IN a vast and thickly populated country like British India, the inhabitants of which depend so much on the productiveness of the soil for their sustenance and prosperity, it is a matter of the first importance that the fertility of the land be preserved by due attention to the laws of nature, and that the influences of the climate upon the crops of the husbandman should be retained, as far as possible, at their most beneficial medium. Extending from a few degrees north of the equator to thirty-five degrees north latitude, and embracing some of the most extensive plains as well as the highest mountains in the world, the productive capacity of the soil of India is peculiarly liable to be influenced by any undue interference with the balance of nature in providing sheltering forests, which also act as storehouses

[illegible] crops are a

Sagittaria graminea forma flexilaris

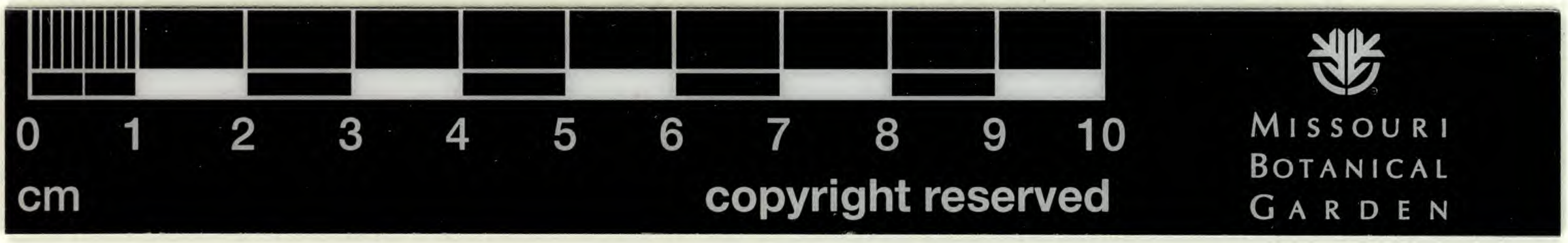


stamens

achenia

C E Faxon 1877

10072



1856

A form of Triplex (Gramineae) from the South (in the Arad Spiked) is rather plentiful long, flavored, and approaches to natans

10073

Sagittaria graminea Sept 29 1877

Floating Boston

C E Faxon

6 stamens
(too much flattened
pressed ?)

von Aken

older

10074

Herb A Gray 1883

Sparganium eurycarpum
in California, from San Juan Capistrano
also from Los Angeles (Caye from
and under the name of S. Californicum
Greene from Napa Valley with
leaves 6-9 feet long!

10075

Sagittaria
Habit of acutifolia
with long linear phyllodia
no proper leaves seen —
flowers small on slender
pedicells —
glabrous &c. James in Long's Expedition

10076

formed by the months of January, February, November and December; the second with a mean electricity by the months of March, April, May and October; and the third with the lowest electricity by the months of June, July, August and September.

The aggregate monthly mean of

The first group in 1861 is	52.9	—in 1862,	54.6
The second	"	"	33.5	"	35.2
The third	"	"	14.1	"	10.5

Thus in 1861 the third group prevailed, and in 1862 the first and second. But these differences are so well balanced throughout the year, that the mean of the whole year in 1861 and in 1862 is exactly the same, namely, 8.4. Such an identity in the yearly result, even to decimals, is of course not to be expected every year; but it seems to prove, at least, that the yearly mean of electricity is as constant as that of temperature, of relative humidity, and of atmospheric pressure.

The third table, showing the daily periodicity of atmospheric electricity, confirms the daily two maxima and two minima of electricity as an undeniable fact.

	50 + el.	50 + [illegible]			15 no el.	34 no el.

Snowing was accompanied

	By Positive Electricity.		By Negative Electricity.		By no Electricity.	
	In 1861.	In 1862.	In 1861.	In 1862.	In 1861.	In 1862.
January.....	3	9	.....	2	.....	.....
February	12	8	.....	1	.....	.....
March	3	12	.....	.....	.....	.....
October.....	.....	1	.....	.....	.....	.....
November	.....	4	.....	.....	.....	.....
December	5	2	2	.....	.....	1 .....
	23 + el.	36 + el.	2 — el.	3 — el.	.....	1 no el.

REMARKS.

The monthly mean of atmospheric electricity in 1862 was not quite so regular as that in 1861. While in 1861 an un-

IV

100788

Ans 2 Oct. 26

Wilmington Oct. 20th 1876.

Dr. Dr Engelmann

I have Sagittaria pusilla
in my Herb. as represented on the margin
of this; and am confident that I have
seen as many as four united as in one of
these. I don't insist upon Canya microcarpa
being a good species but think appear to be
enough differences in all that I have seen
to separate it from C. pusilla. You have a better chance
to see all varieties and will tell us all about it soon
I hope. Ever truly Yours Will Canby.

S. pusilla, Pine Lake, Miss.

POSTAL CARD.

WRITE THE ADDRESS ON THIS SIDE—THE MESSAGE ON THE OTHER.

Dr. Geo. Engelmann

St. Louis

Missouri

Sep 1860

Sag. alpina

Wilmington Del

fertile flow. pedicel 4 times as Thick as ♂ fl. with 6 stam.

from Alcohol Spec.

with

x30

x60

pistils

Corolla seen from below; sexangle with 3 x 3 & 1 x 3 = 12 stam

Stamens

Pollen x412

5-6

420

M. W. ALEXANDER,

SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,

ST. LOUIS.

Sag. calycina Wilmington Delaware.

examd from Alcohol spm Sept 1860

sterile

fem. flower

4 "' diameter

6 stamens

Pollen

×270

×270

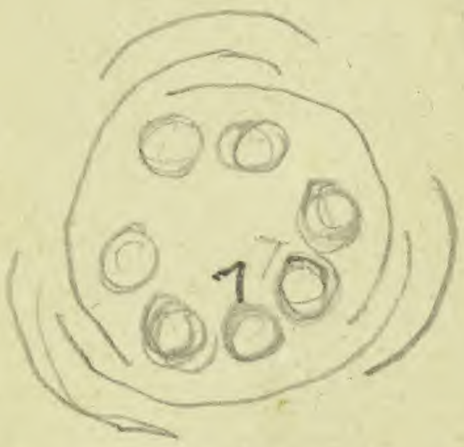
×270

Cells of an Ther

(after soaking in alcohol? walls striated, folded?)

same in Spirilla and moss = all Sg

×30



7 stam

the 7th a Before first petal

cells not striated

part of filament

M. W. ALEXANDER,

SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,

ST. LOUIS.

Sag. calycina

Tollem

Wilmington Del

Sept 1860

for Alcohol spec.

×270

top of style

×270

×60

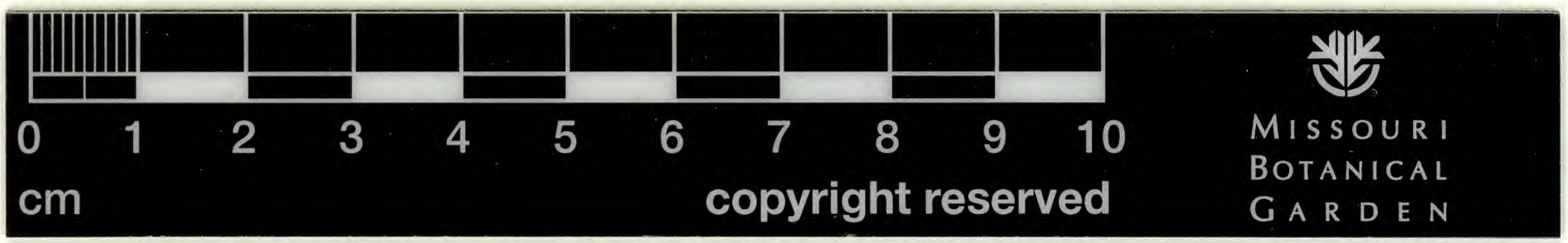
pistil of fem fl.

10082

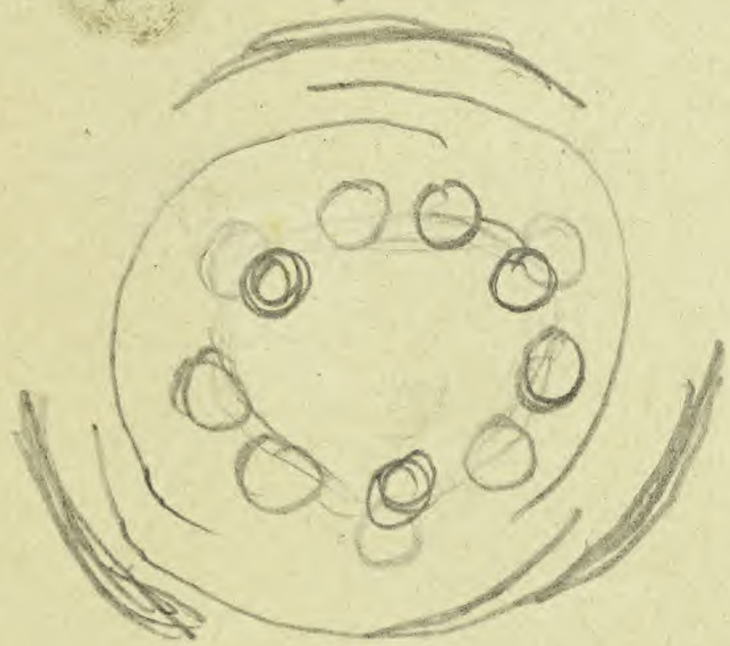
M. W. ALEXANDER,

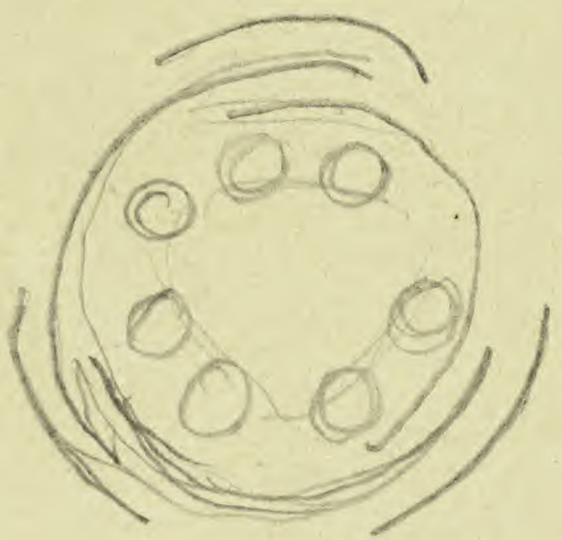
SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,

ST. LOUIS.



Soz. calycina





Wilmington Del

Sept 1860.

from Alcohol spec.

×30

the 10th incomplete stamen

Stamens 6–12

Lower flowers with shorter pedicels, and more numerous stamens

6 in an exterior series in 3 pairs, opposite the sepals

the next are 3 in an interior circle, opposite petals

the following 3 are in a third circle, opposite the center of the sepals

M. W. ALEXANDER,

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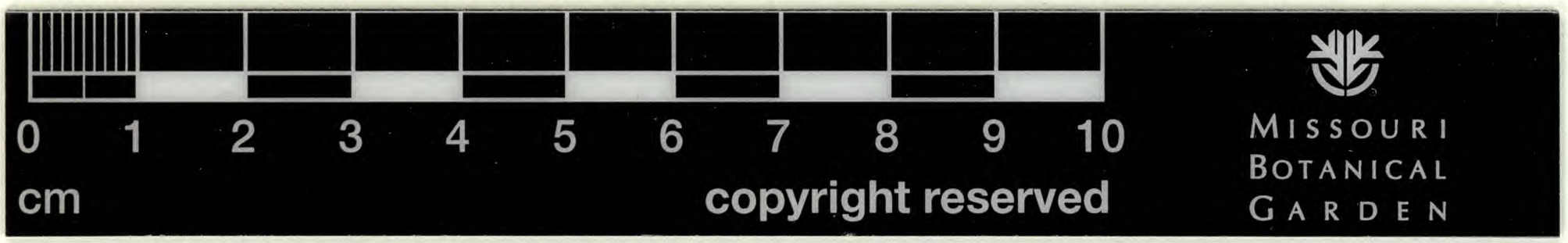
ST. LOUIS.

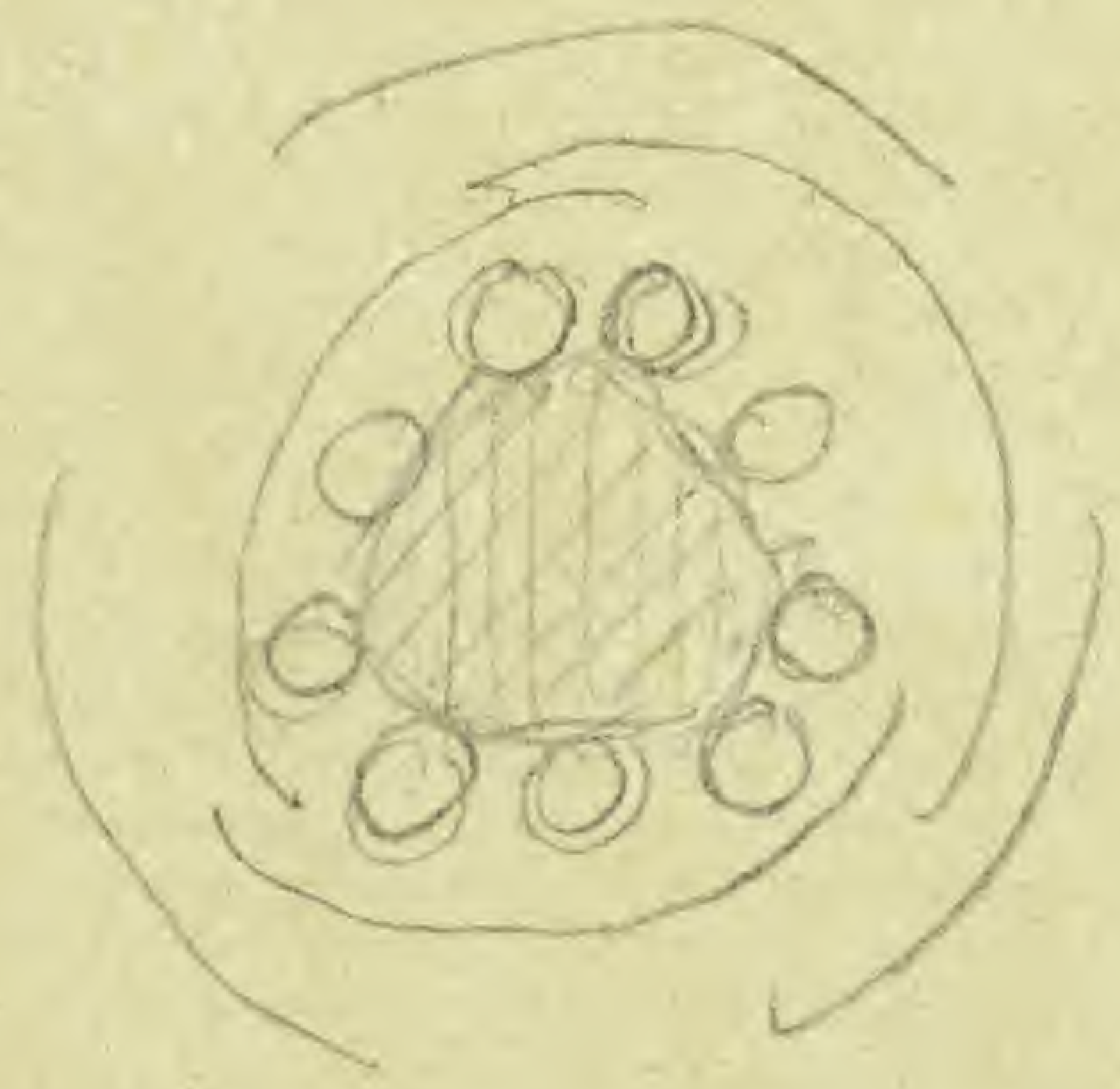


Sag. calycina from Kimmswick fl. in Alcohol

Sept. 1860

fl. 7–8 lines diameter

x 60

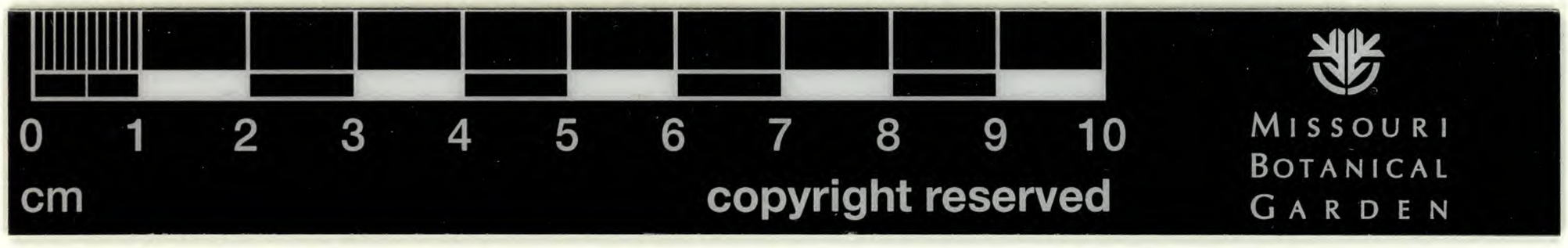


x 15½

ovary of flower
not impregnated
made transparent
with Kali caust

10084

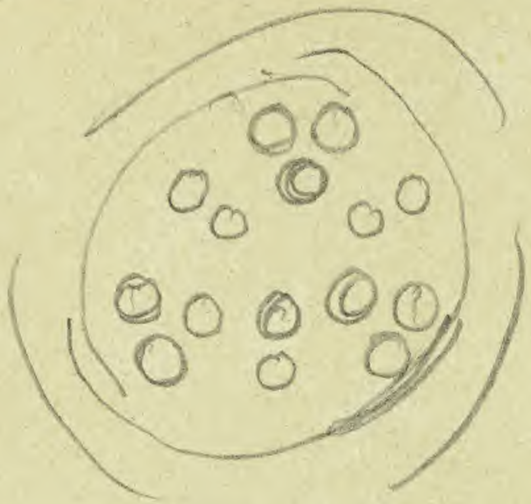
M. W. ALEXANDER,
SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,
ST. LOUIS.



S. calycina

Kinnoull Wk Sept 1860

actual diagram
male flower
with 16 stamens
and small ovule
of pistils.
× is the 16th — where does it belong?



imaginary
diagram
15 stamens

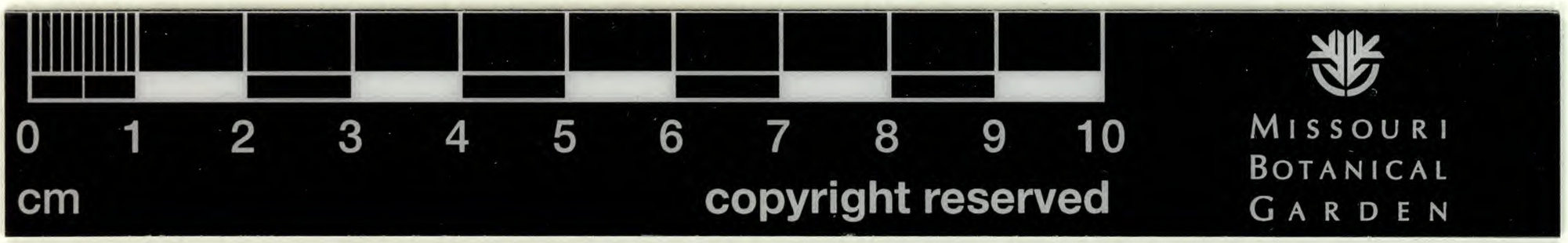
1, 3 pair opposite sepals
2, 3 single opp. petals
3, 3 " " sepals
4, 3 " " petals

(where there are 18 stamens, it is probable, that 4, 3 pairs before each petal)

base of sepal broad, corresponds to the triangular sides of the pedunkle

base of petals narrow, not overlapping

Apparently an exterior row of 9 stamens, 3 of which before the centre, and 6 before the edges of the petals, and an interior row of 6 more before the centre of sepals & petals.



M. W. ALEXANDER,

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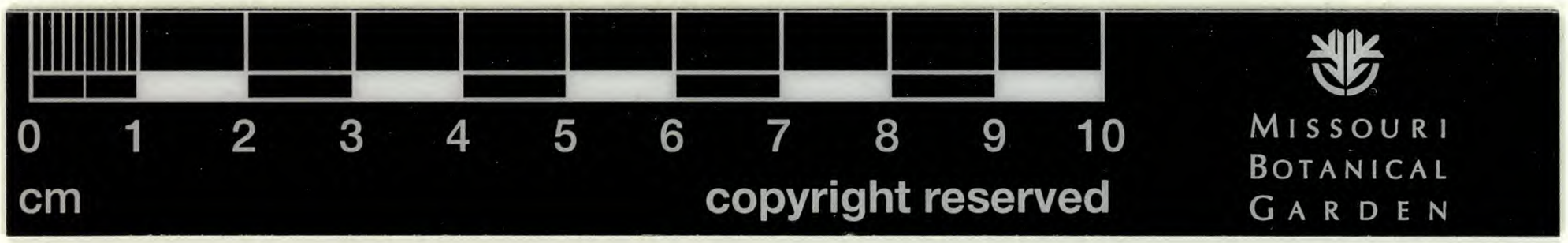
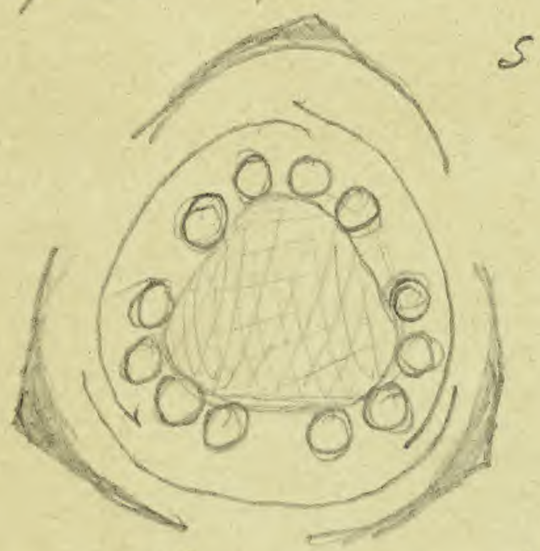
ST. LOUIS.



Sag. calycine fm Kimmswick; fl. in Alcohol

Single flower of a dwarf specimen

Sept 1860



apparent arrangent of stamen

4 before each sepal

real arrangent

3 × 2, the broadest filaments.

3

3

× 30

× 270

cells of effete anther

× 270

filament part.

× 240

× 30

× 270

Pollen

$\frac{6}{412}$ lin

412

10086

M. W. ALEXANDER,

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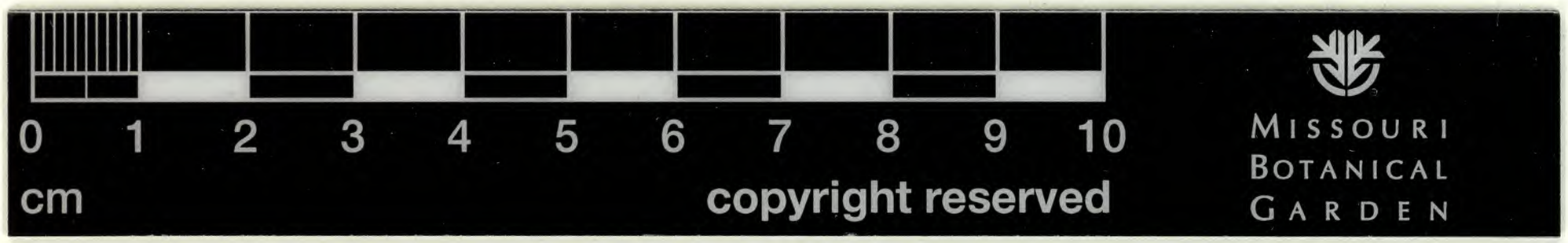
ST. LOUIS.

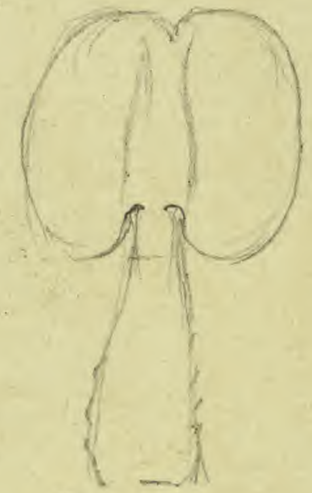


Sag. rhizomifera — flower bud, long before opening — Sept 1860

Missouri

×60

×30



stamen.

×270

anther cells not folded or striate

×270

part of filament

of an effete stamen

showing the papillose surface

10087

M. W. ALEXANDER,
SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,
ST. LOUIS.

Sagitt algrina from MO, living — after fecundation — Sept. 1860

calyx

basal

top

lateral

triangular pedicel cut off.

x 270

x 20

anther

x 442

pollen globe

x 30

pistils

9 stamens

1, 3 pairs opp. sepals

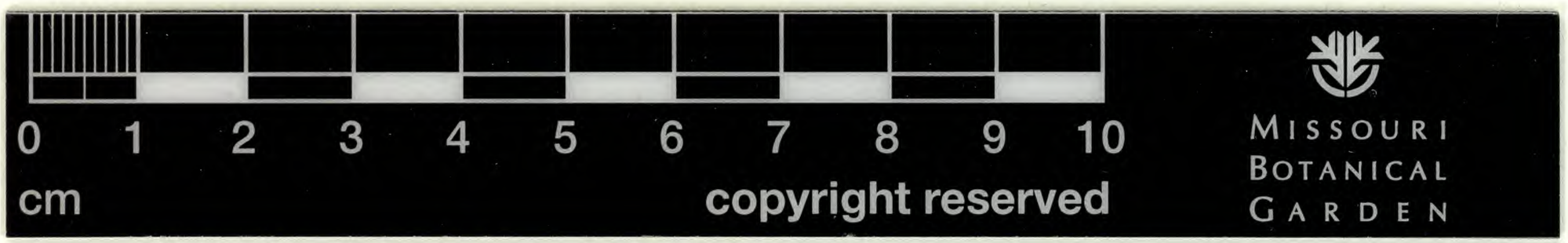
3, 3 single - petals

10088

M. W. ALEXANDER,

SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,

ST. LOUIS.



Sagitt. calycina, Los Angeles, Parish
S. natans, Cambridge Faxon Nov. 1881

Sagittariae of the alliance of S. graminea, bulbos filam.

A Sag. with papillose filaments
1. S. graminea (winter rams without phyllodia) (b phyllodia in part; gramineifolia (near coast) a entirely; acutifolia (interior) c. no phyllod. simplex
2 S. recurva
3 S. cristata single ♀ verticil
B. with glabrous filaments
4 S. longiloba
5 S. papillosa
6 S natans

I Eusagittaria ♃ stoloniferae & ~~bulbiferae~~ tuberiferae ~~& ... sagittaria~~

filamenta subulata, nec bulbosa
glabra

S. variabilis
? S. pubescens
? S. arifolia ? Mexican ? sagittifolia
papillosa
S. ~~[illegible]~~ lancifolia

filamenta basi bulbosa
glabra
S. natans & pusilla
S. papillosa
S. longiloba

papillosa s. pubescentia
fl. fem pedicellati
S. graminea acutifolia
S gramineifolia genuina } near coast
simplex inland, interior.
S. recurva
S. cristata
fl fem. subsessilibus
S. heterophylla
S. calycina
II Pseudechinodorus ☉

10089